High-performance, high-reliability and high-productivity
electric injection molding machine

FANUC

ROBOSHOT α-*si*A series

FANUC standard CNC and servo system installed Electric injection molding machine achieves high quality,

FANUC ROBOSHOT α-*Si*A series

Applying the latest CNC & servo technology

High-Performance of Molding

- Precision and stable molding
- Highly-Rigid and Low-Friction Mechanism
- Additional Servo Axis Control

Good combination with FANUC Robot

High-Sustainability

- High-Reliability
- Minimize Downtime
- **ROBOSHOT-LINK*i***

Ease of Use

- Fully Enclosed Cover Style
- Conformity to Safety Standards
- Robot System


α-S15*i*A


α-S30*i*A


α-S50*i*A


α-S100*i*A


α-S130*i*A

high reliability and high productivity

High-Performance of Molding

FANUC standard CNC achieves superior molding repeatability
Highly-rigid and low-friction mechanism achieve precision molding
Additional servo axis control achieves extra value in molding

High-Sustainability

FANUC standard servo system achieves high-reliability and lower energy consumption
High-precision AI protect function minimizes downtime
ROBOSHOT-LINK*i* manages product and quality information

Ease of Use

Fully enclosed cover style achieves both safety and accessibility
Conformity to safety standards supports molding plant globalization
Robot system with superior interoperability

α-S300*i*A

α-S450*i*A

NEW

α-S150*i*A

α-S220*i*A

α-S250*i*A

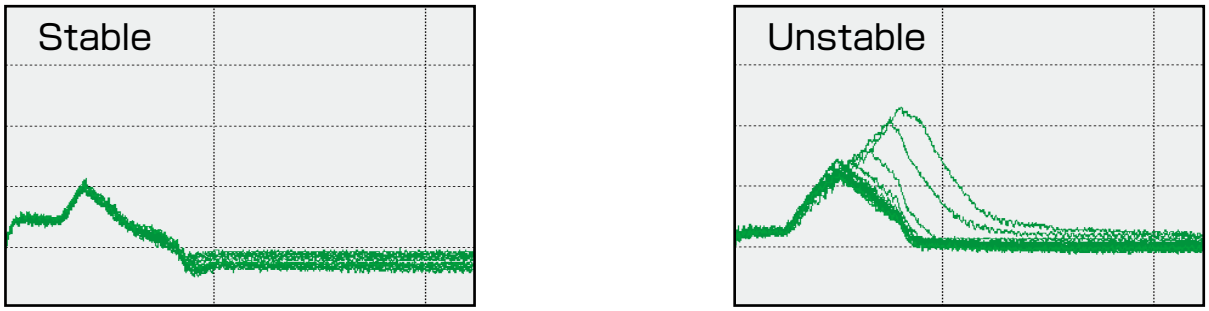
The outer view and operation differ in specifications.

High-Performance of Molding

FANUC standard CNC achieves superior molding repeatability

Backflow monitor

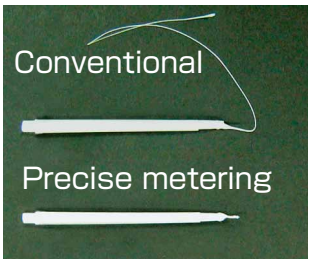
・Detects backflow precisely at injection start, Displays injection repeatability in graph



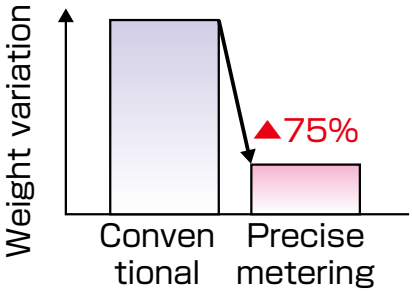
Backflow monitor screen

Precise metering

・Controls screw movement during metering optimally, Prevents string and silver streaking



・Eliminates backflow of resin, Stabilizes injection volume and reduces weight variation of molded products



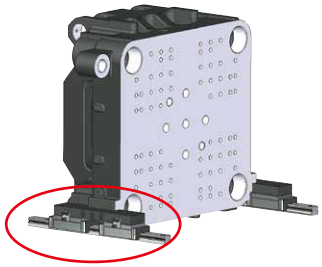
Precise connector
Resin : PA66

Highly-rigid and low-friction mechanism achieves precision molding

Clamping unit

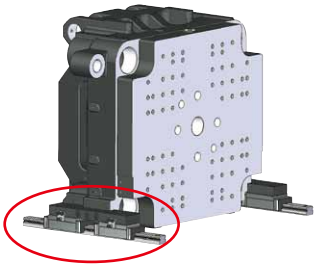
・Selectable two types of moving platen*
・Low-friction linear guided support*

[Single platen]
Expands mold area



Magnetic clamping system
Three plates mold etc.

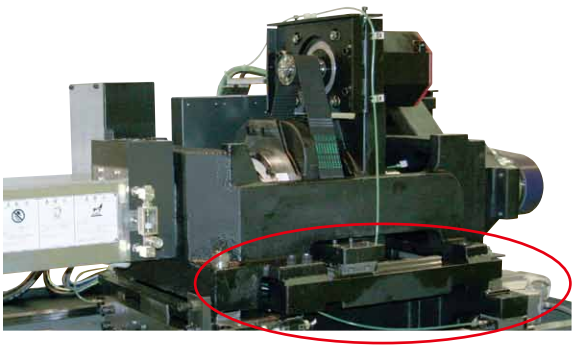
[Double platen]
Pursuits high rigidity



Multi cavities
Thin wall molding etc.

Injection unit

・Adopts low-friction linear guides, Achieves smooth injection and metering motion



Low-friction linear guides

Standard for α-S15*i*A/α-S30*i*A/α-S50*i*A/α-S100*i*A/α-S130*i*A
*:Optional. Available options differ in region and model.

Additional servo axis control achieves extra value in molding (Option)

Additional servo axis control advances ROBOSHOT further

[Suitable feeding device]

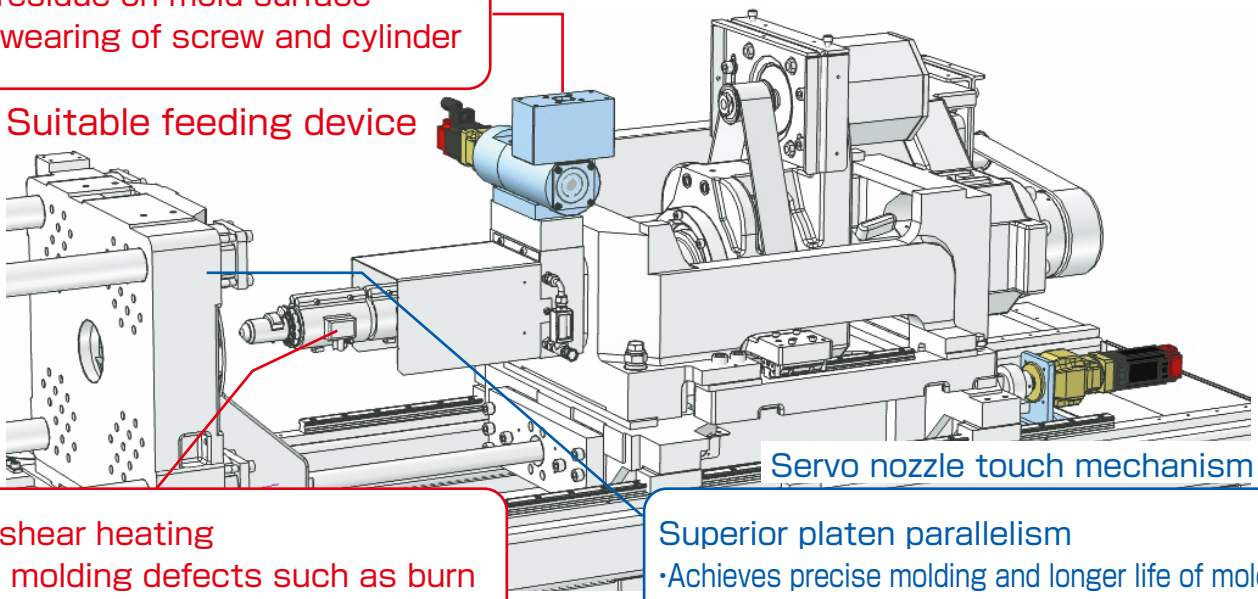
・Achieves optimal amount of resin supply by feedback control, Achieves long term molding repeatability

[Servo nozzle touch]

・Controls nozzle touch force during molding cycle optimally

Promotes gas ventilation
·Reduces residue on mold surface
·Prevents wearing of screw and cylinder

Suitable feeding device



Servo nozzle touch mechanism

Reduces shear heating
·Prevents molding defects such as burn

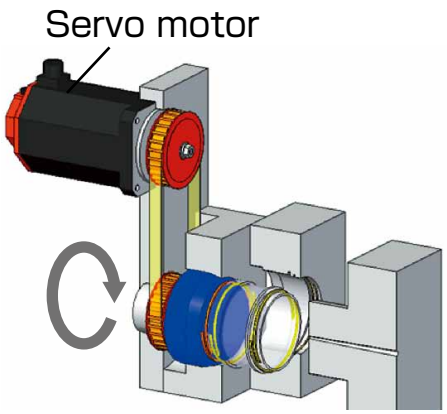
Superior platen parallelism
·Achieves precise molding and longer life of mold

Additional servo axis control achieves versatile applications*

・High-speed and accuracy positioning by FANUC servo technology

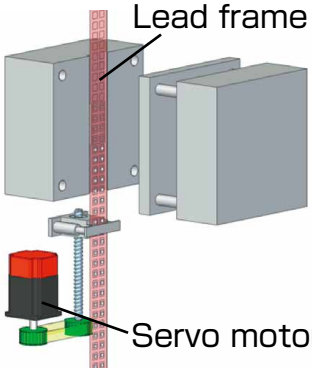
・No additional control equipment required, Integrated into ROBOSHOT operation

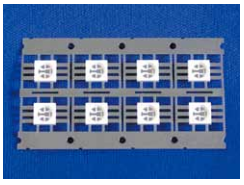
[Unscrewing molding]



Container with screw
Resin : PS

[Hoop molding]





LED parts
Resin : LCP

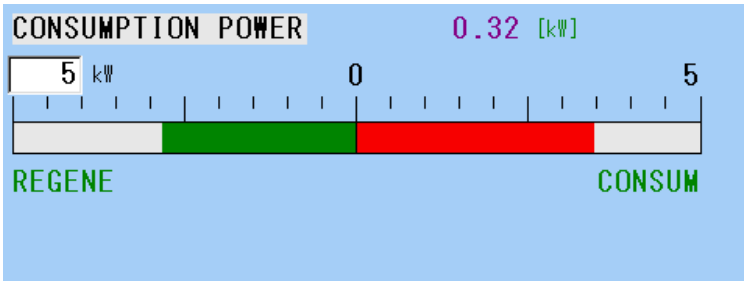
*Only additional servo system will be offered

High-Sustainability

FANUC standard servo system achieves high-reliability and lower energy consumption

- High-efficiency servo system reuses regenerated power during deceleration of motors, Excellent energy saving performance
- Displays consumption power and regenerated power on operation screen
- Monitors power consumption including auxiliary equipments*

High-performance servo motors and amplifiers αiseries



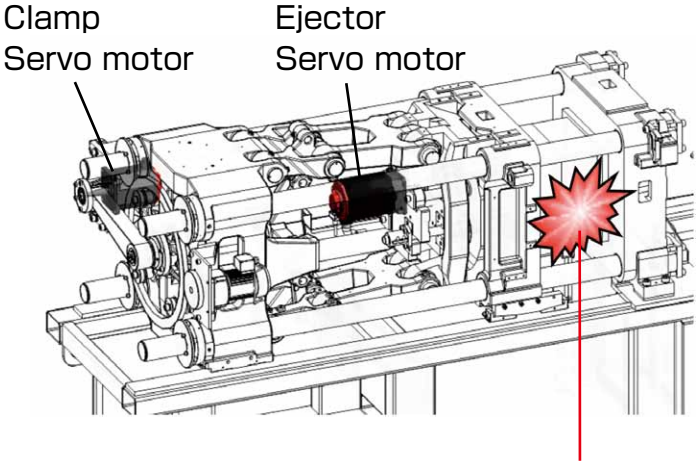
Consumption power monitor screen

*:Optional. Available options differ in region and model.

High-precision AI protect function minimizes downtime

AI mold protection

- Detects remaining molded products during mold closing or abnormal sliding core motion during mold opening with high-accuracy
- Interrupts motion immediately after abnormal status detected, Protects mold and ejector pin from damage



Experimental example of AI mold protection by using paper cup

AI mold protection ON

AI mold protection OFF

1.Realtime monitoring
Monitors load of servo motors in every cycle

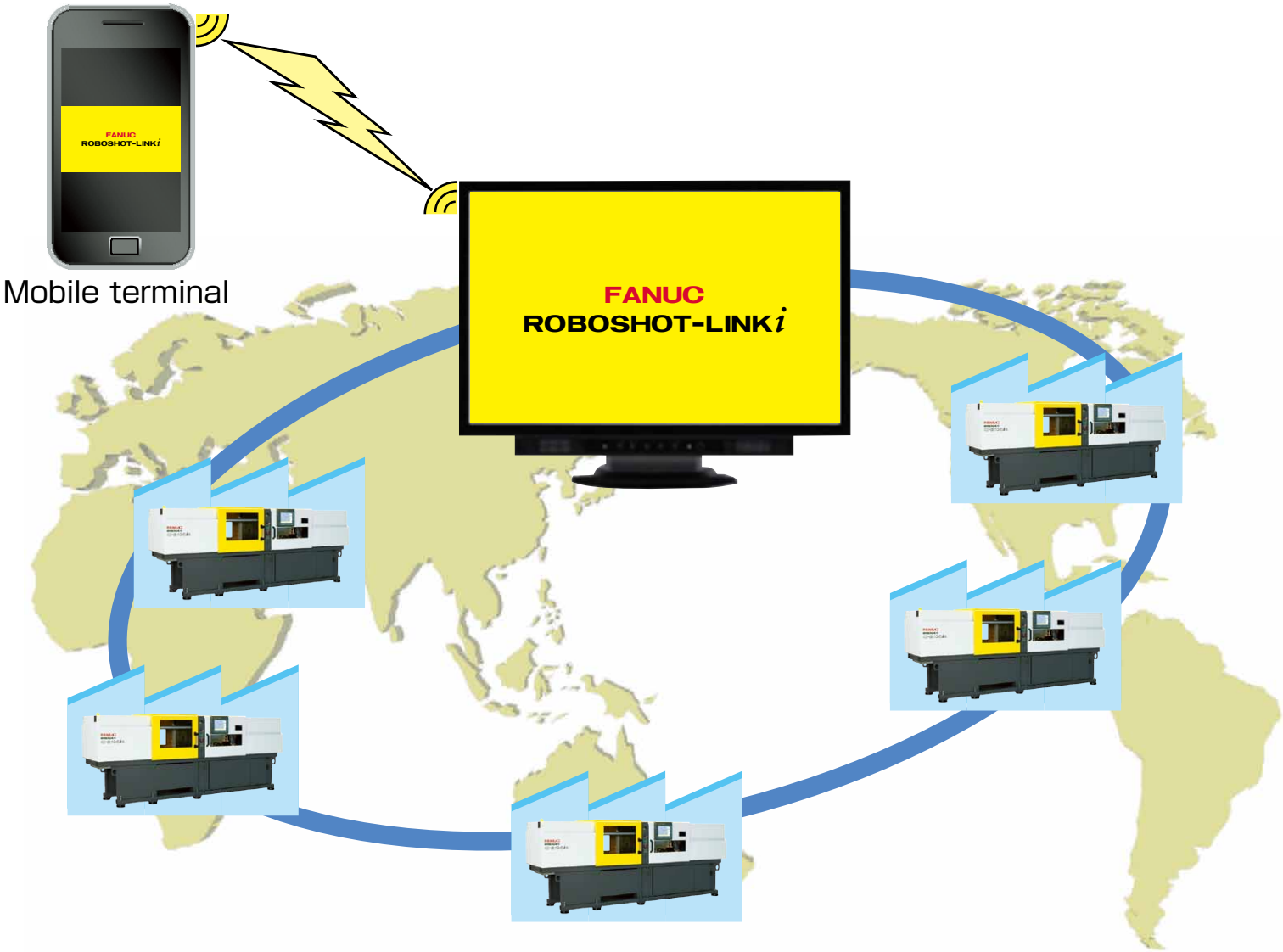
2.Problem detection
Detects load deviation precisely caused by remaining molded products etc.

3.Protection
Interrupts clamp and ejector motion immediately

ROBOSHOT-LINK*i*

ROBOSHOT-LINK*i* manages product and quality information (Optional)

- Production and quality information management tool supports larger-scale and globalization of molding plant
- "Visualization" of ROBOSHOT data

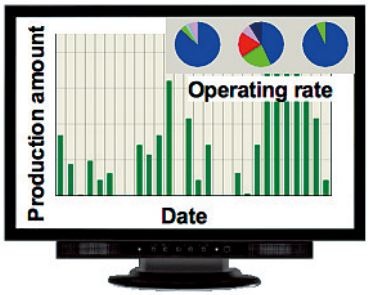


Product information management

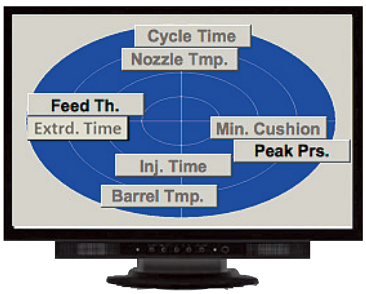
- Achieves lower cost and higher operation rate
- Monitors consumption power including auxiliary equipments

Quality information management

- Achieves traceability and advanced quality
- Investigates cause of failure and molding repeatability



Visualization of production amount and operating time



Visualization of cause of failure

Ease of Use

Fully enclosed cover style achieves both safety and accessibility

High-level safety

・Fully enclosed cover style prevents contact with moving part and high temperature part with high-level safety

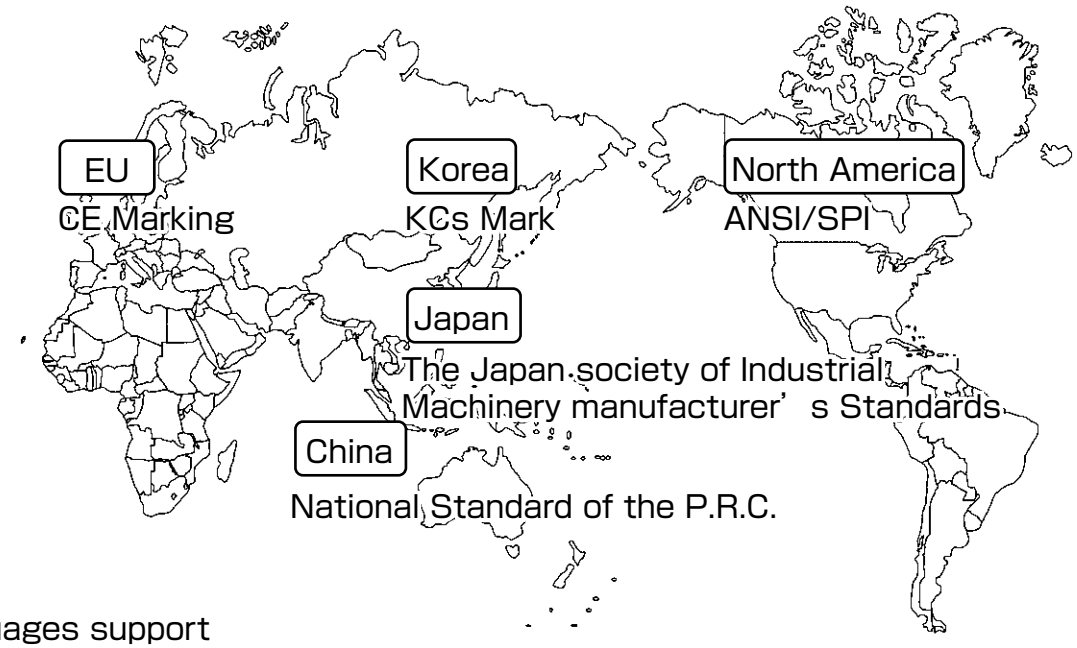
・Achieves compact machine dimensions

Superior accessibility

・Wide opened hopper maintenance area, Enhances accessibility

Conformity to safety standards supports molding plant globalization

Regional safety standards and multiple languages support



Multiple languages support

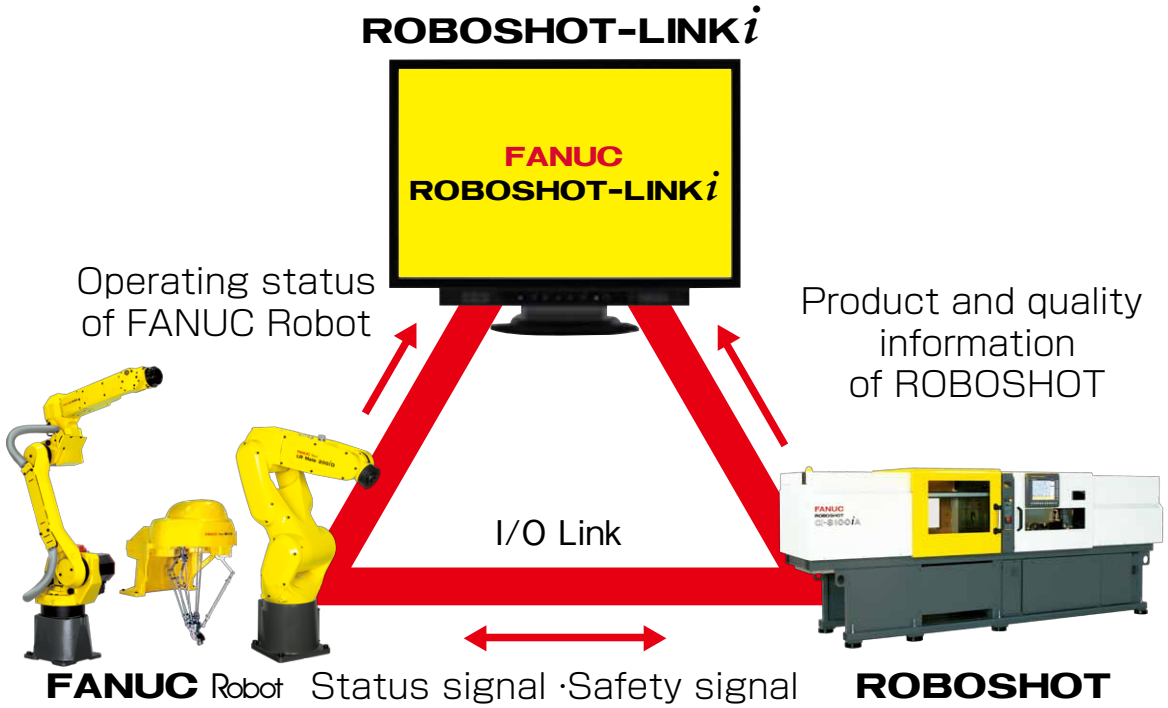
Japanese / English / Chinese simplified / Chinese traditional / Korean / Thai / Vietnamese
Indonesian / German / French / Italian / Spanish (Mexican) / Portuguese / Czech / Finnish
Dutch / Hungarian / Danish / Polish

Safety requirements differ in region
Please confirm the latest safety requirements of the region where ROBOSHOT is installed.

Robot system with superior interoperability*

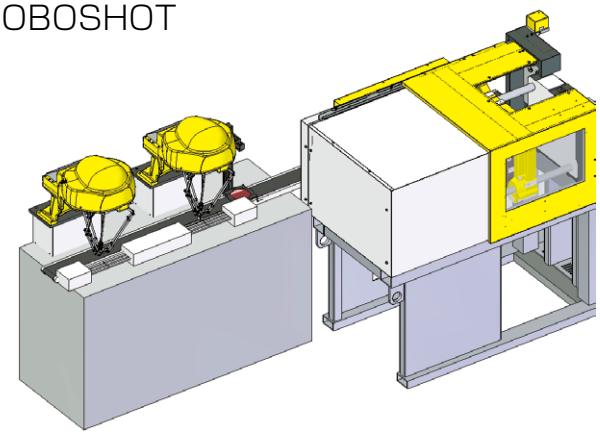
Superior interoperability

・Wire-saving connection by high speed and reliable I/O Link
・Allows principle robot operation on ROBOSHOT screen
・" Visualization"　of molding plant by ROBOSHOT-LINK*i*

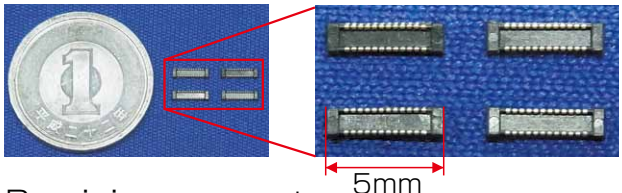


Robot systemization example

[Automatized check・sort]
1.Precision and stable molding by ROBOSHOT

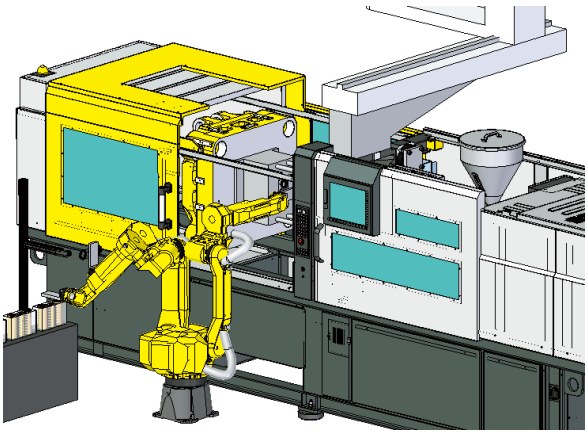


2.Automatic check and sort after parts detection by FANUC Robot



Precision connector
Resin : LCP

[Automatized check・insert]



1.Precision insert of parts by FANUC Robot

2.Precision and stable molding by ROBOSHOT

Automotive interior part
Resin : ABS

*:Optional. Available options differ in region and model.

Application to a range of molding fields

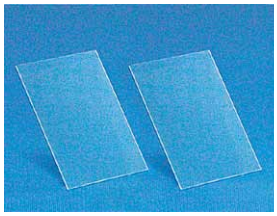
Thin wall light guide panel

Decompression control at injection to packing (8 modes)

・Prevents sink marks and warpage, Achieves uniformed thickness distribution

High pressure resistance cylinder and High pressure filling mode*

・Achieves thinner wall molding by injection with ultra high pressure



Light guide panel for smartphone
Resin : PC

Precise lens

Moving platen support by linear guides*

・Superior platen parallelism and straightness of clamp motion

Screw and cylinder for lens molding

・Optimized screw design and surface treatment achieves high-quality molding

Camera lens for smartphone
Resin : COC

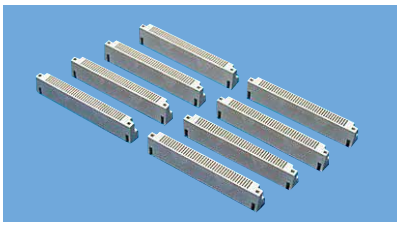
Precise connector

Precise metering

・Reduces weight variation and eliminates stringy, Achieves long term molding repeatability

Nozzle for Liquid Crystal Polymer*

・Optimized nozzle and temperature control for LCP achieves high-quality molding, Prevents resin carbonization



Precise fine-pitch connector
Resin : LCP

Automotive parts

Single platen

・Expanded mold installation area, Supports magnetic clamping system

Hot runner controller (Built-in)*

・Integrated into ROBOSHOT operation, Achieves precise temperature control

Automotive connector
Resin : PBT

Medical parts

Fully enclosed cover style

・Clean and quiet, Ideal for molding in clean room

Suitable feeding device*

・Prevents burn and carbonization, Suitable for molding with transparent resin

Syringe
Resin : COP

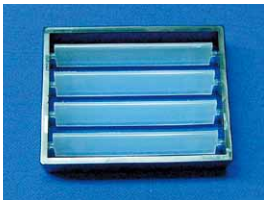
Two components molding

Second injection unit*

・FANUC CNC installed, operate from ROBOSHOT screen

Additional servo axis control*

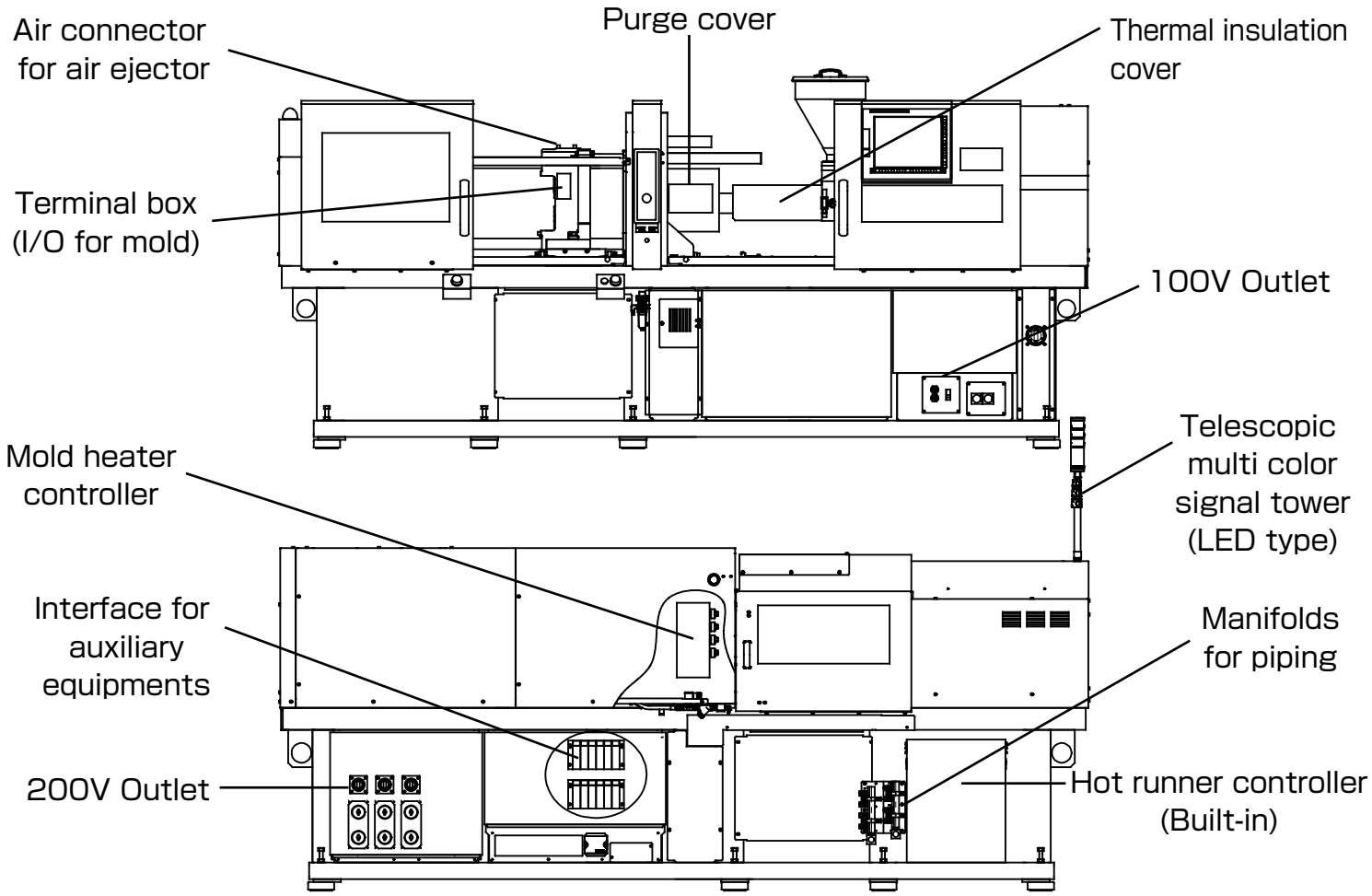
・Integrated into ROBOSHOT operation, Achieves high-speed and accuracy positioning of rotary table



Automotive interior part
Resin : ABS+PP

*:Optional, Available options differ in region and model.

Options

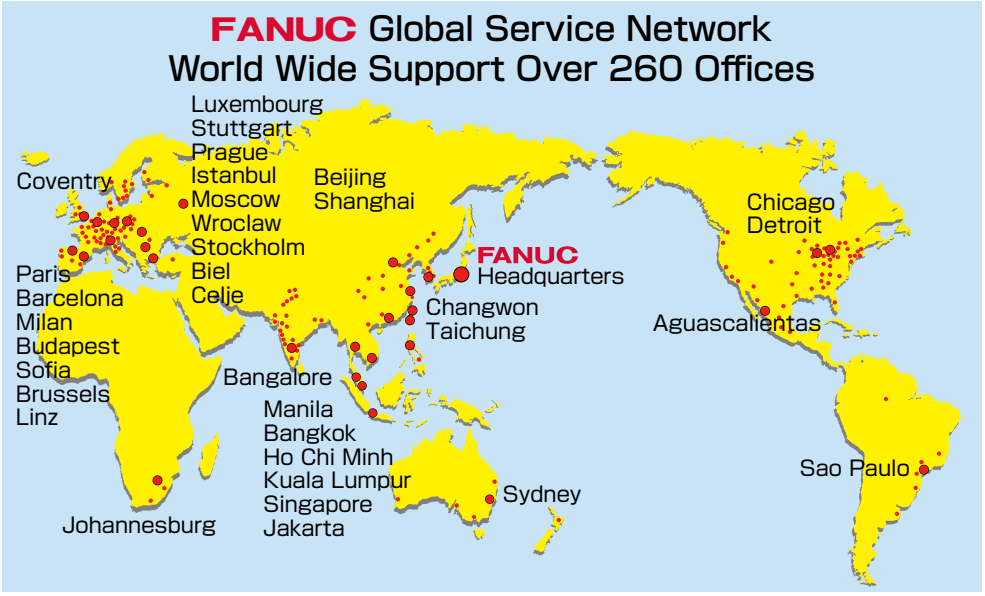


Optional, Available options differ in region and model.
Refer to the "specification list" for details on the options.

Maintenance and customer support

Worldwide customer service and support

FANUC operates customer service and support system anywhere in the world through subsidiaries, affiliates and distributor partners. FANUC provides the highest quality service with the quickest response at the location nearest you.



FANUC ACADEMY

FANUC ACADEMY operates training programs on FANUC ROBOSHOT which focus on practical operations and molding know how and maintenance.

Inquiries : Oshino-mura,
Yamanashi, Japan 401-0597
Phone : 81-555-84-6030 Fax : 81-555-84-5540

Specifications

Item		Unit	α-S15iA	α-S30iA		α-S50iA	
Clamping unit	Tonnage	kN	150 (15tonf)	300 (30tonf)	300 (30tonf) High precision clamp	500 (50tonf)	500 (50tonf) High precision clamp
	Maximum and minimum mold height: Double platen	mm	260/130	330/150	330/150	350/150	350/150
	Maximum and minimum mold height: Single platen	mm	---	---	---	410/210	---
	Clamping stroke	mm	160	230	230	250	250
	Tie bar spacing (H × V)	mm	260×235	310×290	310×290	360×320	360×320
	Platen size (H × V)	mm	355×340	440×420	440×420	500×470	500×470
	Ejector point / Ejector force / Ejector stroke	point/kN/mm	1/7(0.7tonf)/50	1/8 (0.8tonf) /60	1/8 (0.8tonf) /60	5 / 20 (2.0tonf) / 70	5 / 20 (2.0tonf) / 70
Injection unit	Screw diameter	mm	14 16 18	14 16 18 20 22	14 16 18 20 22	20 22 26 28 32	14 16 18 20 22 26 28 32
	Maximum injection volume	cm³	9 11 19	9 11 19 24 29	9 11 19 24 29	24 29 50 58 76	9 11 19 24 29 50 58 76
	Injection specification	---	525mm/s	525mm/s	525mm/s	330mm/s	330mm/s
	Maximum injection pressure (High pressure filling mode)	MPa	--- --- ---	--- 330 300 --- ---	--- 330 300 --- ---	360 340 290 250 ---	--- --- 300 360 340 290 250 ---
	Maximum injection pressure	MPa	250 250 230	250 250 260 270 220	250 250 260 270 220	280 260 210 190 150	250 250 260 280 260 210 190 150
	Maximum pack pressure	MPa	250 230 190	250 250 260 250 200	250 250 260 250 200	280 240 190 160 130	250 250 260 280 240 190 160 130
	Maximum injection speed	mm/s	525	525	525	330	330
	Maximum screw rotation speed	min⁻¹	450	450	450	450	450
	Injection specification	---	800mm/s	800mm/s	800mm/s	500mm/s	500mm/s
	Maximum injection pressure (High pressure filling mode)	MPa	--- --- ---	--- 330 300 --- ---	--- 330 300 --- ---	360 340 275 240 ---	--- --- 300 360 340 275 240 ---
	Maximum injection pressure	MPa	250 250 230	250 250 260 270 220	250 250 260 270 220	280 260 210 190 ---	--- 250 260 280 260 210 190 ---
	Maximum pack pressure	MPa	250 230 190	250 250 260 250 200	250 250 260 250 200	280 240 190 160 ---	--- 250 260 280 240 190 160 ---
	Maximum injection speed	mm/s	800	800	800	500 ---	--- 500 ---
	Maximum screw rotation speed	min⁻¹	450	450	450	450 ---	--- 450 ---

Item		Unit	α-S100iA	α-S130iA	α-S150iA
Clamping unit	Tonnage	kN	1000 (100tonf)	1300 (130tonf)	1500 (150tonf)
	Maximum and minimum mold height: Double platen	mm	450/150	---	500/200
	Maximum and minimum mold height: Single platen	mm	520/220	570/200	575/275
	Clamping stroke	mm	350	400	440
	Tie bar spacing (H × V)	mm	460×410	530×530	560×510
	Platen size (H × V)	mm	660×610	730×730	800×750
	Ejector point / Ejector force / Ejector stroke	point/kN/mm	5 / 25 (2.5tonf) / 100	5 / 25 (2.5tonf) / 100	5 / 35 (3.5tonf) / 150
Injection unit	Screw diameter	mm	22 26 28 32 36 40	32 36 40	22 26 28 32 36 40 32 36 40 44 48 52
	Maximum injection volume	cm³	29 50 58 103 147 181	103 147 181	29 50 58 103 147 181 121 153 188 268 318 442
	Injection specification	---	200mm/s	200mm/s	200mm/s
	Maximum injection pressure	MPa	260 260 240 220 190 160	220 190 160	--- --- --- --- --- --- 280 280 260 220 190 160
	Maximum pack pressure	MPa	260 260 220 200 170 140	200 170 140	--- --- --- --- --- --- 280 280 220 190 160 130
	Maximum injection speed	mm/s	200	200	--- 200
	Maximum screw rotation speed	min⁻¹	300	300	--- 300
	Injection specification	---	330mm/s		330mm/s (Small capacity) 330mm/s
	Maximum injection pressure (High pressure filling mode)	MPa	340 340 320 270 220 ---	--- --- ---	340 340 320 270 220 --- 380 345 280 --- --- ---
	Maximum injection pressure	MPa	260 260 240 220 190 160	--- --- ---	260 260 240 220 190 160 280 280 260 220 190 160
	Maximum pack pressure	MPa	260 260 220 200 170 140	--- --- ---	260 260 220 200 170 140 280 280 260 220 190 160
	Maximum injection speed	mm/s	330	---	330 330
	Maximum screw rotation speed	min⁻¹	450	---	450 400
	Injection specification	---	500mm/s		500mm/s (Small capacity)
	Maximum injection pressure (High pressure filling mode)	MPa	340 320 280 --- --- ---	--- --- ---	340 320 280 --- --- --- --- --- --- --- --- ---
	Maximum injection pressure	MPa	260 260 240 220 170 ---	--- --- ---	260 260 240 220 170 --- --- --- --- --- --- ---
	Maximum pack pressure	MPa	260 260 220 200 170 ---	--- --- ---	260 260 220 200 170 --- --- --- --- --- --- ---
	Maximum injection speed	mm/s	500 ---	---	500 --- ---
	Maximum screw rotation speed	min⁻¹	450 ---	---	450 --- ---
	Injection specification	---	1000mm/s (Ultra high speed)		1200mm/s (Ultra high speed)
	Maximum injection pressure	MPa	400 380 350 270 --- ---	--- --- ---	400 380 350 270 --- --- --- --- --- --- --- ---
	Maximum pack pressure	MPa	380 350 300 230 --- ---	--- --- ---	350 250 210 160 --- --- --- --- --- --- --- ---
	Maximum injection speed	mm/s	1000 --- ---	---	1200 --- --- ---
	Maximum screw rotation speed	min⁻¹	450 --- ---	---	450 --- --- ---

Item		Unit	α-S220iA	α-S250iA	α-S300iA	α-S450iA
Clamping unit	Tonnage	kN	2200 (220tonf)	2500 (250tonf)	3000 (300tonf)	4500 (450tonf)
	Maximum and minimum mold height: Double platen	mm	---	650/300	650/300	1000/350
	Maximum and minimum mold height: Single platen	mm	650/250	---	---	---
	Clamping stroke	mm	550	600	600	900
	Tie bar spacing (H × V)	mm	650×650	710×635	810×710	920×920
	Platen size (H × V)	mm	900×900	1030×960	1130×1030	1300×1300
	Ejector point / Ejector force / Ejector stroke	point/kN/mm	13 / 35 (3.5tonf) / 150	13 / 80 (8.0tonf) / 200	13 / 80 (8.0tonf) / 200	21 / 150 (15.0tonf) / 250
Injection unit	Screw diameter	mm	44 48 52	26 28 32 32 36 40 44 48 52	40 44 48 52 56 64 68	56 64 68 72
	Maximum injection volume	cm³	268 318 442	50 58 103 121 153 188 268 318 442	188 268 318 442 640 836 944	640 836 944 1059
	Injection specification	---	200mm/s	1200mm/s 330mm/s	240mm/s	240mm/s
	Maximum injection pressure (High pressure filling mode)	MPa	--- --- ---	--- --- --- 380 345 280 --- --- ---	--- --- --- --- --- --- ---	--- --- --- ---
	Maximum injection pressure	MPa	220 190 160	450 450 380 280 280 260 220 190 160	280 280 270 240 225 175 155	225 175 155 135
	Maximum pack pressure	MPa	190 160 130	450 430 330 280 280 260 220 190 160	280 260 240 220 195 150 130	195 150 130 120
	Maximum injection speed	mm/s	200	1200 330	240	240
	Maximum screw rotation speed	min⁻¹	300	450 400	400	400 300
	Injection specification	---			270mm/s	
	Maximum injection pressure	MPa	--- --- ---	--- --- --- --- --- --- --- --- --- ---	280 260 230 200 172 --- ---	--- --- --- ---
	Maximum pack pressure	MPa	--- --- ---	--- --- --- --- --- --- --- --- --- ---	280 260 230 200 172 --- ---	--- --- --- ---
	Maximum injection speed	mm/s	---	--- ---	270 ---	---
	Maximum screw rotation speed	min⁻¹	---	--- ---	400 300 ---	---

Note: When high filling mode is used, a special cylinder is needed. Molding conditions may be restricted depending on the screw diameter. For details, see a separate list of specifications.

FANUC CORPORATION

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